

Europäisches P:
European Patent:
Office européen des brevets



(11) **EP 0 795 072 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
05.03.2003 Bulletin 2003/10

(51) Int Cl.⁷: **E06B 3/40**

(86) International application number:
PCT/SE95/01419

(21) Application number: **95939464.4**

(87) International publication number:
WO 96/017151 (06.06.1996 Gazette 1996/26)

(22) Date of filing: **28.11.1995**

(54) **AN IMPROVED WINDOW**
EIN VERBESSERTES FENSTER
FENETRE AMELIOREE

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL
PT SE

(74) Representative:
Cederbom, Hans Erik August et al
Cegumark AB,
Box 53047
400 14 Göteborg (SE)

(30) Priority: **28.11.1994 SE 9404098**

(43) Date of publication of application:
17.09.1997 Bulletin 1997/38

(56) References cited:
GB-A- 2 013 763 **NO-B- 172 506**
NO-C- 26 985 **NO-C- 60 746**
US-A- 2 718 675 **US-A- 3 936 978**
US-A- 4 007 558

(73) Proprietor: **Öhman, Hans**
426 55 Västra Frölunda (SE)

(72) Inventor: **Öhman, Hans**
426 55 Västra Frölunda (SE)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 0 795 072 B1

Description

[0001] The invention concerns an improved window, the casement of which is pivot-hung in its associated frame.

[0002] Double glazing as well as triple glazing windows have been developed lately in which the window panes are treated to prevent strong heat radiation from entering through the glazing. Instead, part of the heat radiation is reflected back into the atmosphere. In this manner it has become possible to prevent powerful sunlight to heat the premises in a building excessively during the summer, with resulting economy of for instance the energy required to operate an air conditioning system. In many cases it has also become possible to do without Venitian blinds.

[0003] However, as summer progresses into autumn and winter the conditions are the opposite ones. During this period it is desired to prevent heat from the heated premises from radiating through the windows and into the atmosphere.

[0004] US 3,936,978 discloses a window that is turnable. However, which side that opens is fixed, i.e. a specific side of the window facing outwards means that only the lower side is detachable or if said specific side of the window is facing inwards, only the upper side of the window is detachable, or vice versa. US 2,718,675 discloses a similar solution to that in US 3,936,978 with the same limitations.

[0005] In GB 2013763 A and US 4,007,558, turnable windows are described. A further drawback with these solutions is that the windows only come to a closed position with a specific side of the window facing outwards/inwards.

[0006] The subject invention provides improvements whereby it becomes possible to make use of the advantages brought about by the kind of windows, described above all the year around. This possibility is obtained by making the casement pivotable, from a closed position in the window frame, over half a turn to a closed, fully reversed position and, from the latter position, further pivotable in the same direction or pivotable reversely in the opposite direction. In this manner the improvements allow the user a choice of which side of the window he wishes to be directed outwards and which to be turned inwards during a certain period.

[0007] The invention should be described in closer detail in the following with reference to the accompanying drawings, wherein

Fig. 1 is a cross-sectional view through a part of the casement and of the frame,

Fig. 2 is a schematical view of the frame and its associated casement, the latter assuming various pivotable positions,

Fig. 3 illustrates on an enlarged scale a cross-sectional view through the frame, including a casement locking means, and

Fig. 4 is a perspective view of said locking means.

[0008] The window to be described in the following consists of a casement 1 which is mounted on pivots in a window frame 2. Each side jamb of the casement 1 intermediate two corner portions consists of two structural profile sections 3, 4 and of a third profile section 5 serving as a glazing strip. The three profile sections 3, 4, 5 extend in mutual parallel relationship. The structural profile sections 3, 4 are interconnected by bridge members 6, 7 having poor heat-conductivity and thus serving to prevent thermal bridges from generating between the external face of the casement 1 to the left in Fig. 1 and its external face to the right in the same drawing figure. A guide bushing 8 is located between the structural profile sections 3 and 4.

[0009] The third profile section 5 serving as a glazing strip is formed with a longitudinal edge web 9 which extends past the structural profile section 4 and which together with a corresponding longitudinal edge web 10 on the structural profile section 3 defines a space for reception of an edge portion of the glazing unit 11 which, in accordance with the embodiment illustrated in Fig. 1, consists of three window panes. Screws 12, only one of which is shown in Fig. 1, are equally spaced along said side jamb of the casement 1 in order to secure the profile section 5 to the structure profile sections 3 and 4.

[0010] On the screw-insertion face of the casement side jamb the latter is provided with a covering strip 13 enclosing the longitudinal edge web 9 of profile section 5 in the area adjacent the glazing unit 11 and said strip is formed in the area of the opposite longitudinal edge of the profile section 5 with a transverse edge portion 14 which grippingly engages a correspondingly configured transverse edge portion 15 on the profile section 5. The transverse edge portion 14 may be attached to the transverse edge portion 15 by means of screws 16, only one of which is shown in Fig. 1, said screws being directed in such a manner that when the casement 1 occupies its closed position within the frame 2, they are hidden between the casement 1 and the frame 2. Thus, burglarising attempts by dismounting the casement are made difficult.

[0011] The inner face of the casement 1 is fitted with a covering strip 17 of identical configuration to covering strip 13. However, the covering strip 17 need only be snap-fastened to the structural profile-section 3 since no screw 12 is accessible from this side.

[0012] As appears from Fig. 2, the casement 1 is pivotable with respect to the frame 2 with the aid of a pivot mechanism or fitting of a construction known per se. The fitting consists of a link arm 18, one end of which is pivotally mounted on a pivot 19 in the window casement 1 whereas its opposite end is provided with a bushing 20 travelling in a groove 21 formed in the frame. A second link arm 22 has its one end pivotally mounted in the frame 2 and its opposite end articulated to the link arm 18, somewhat interiorly of pivot 19 on the casement. The

guide bushing 8 travels in a groove 23 extending in parallel with groove 21 and continuing at its ends into transverse grooves 24 and 25, respectively, opening into the environment.

[0013] Figs. 3 and 4 illustrate a locking means in the shape of a turnable member consisting of a turnable shaft 26 supporting a hand wheel 27 at one of its ends and a catch at the opposite one. By turning the hand wheel 27 the catch 28 may be moved from a retracted position inside a slit 29, downwards into a blocking position behind the guide bushing 8.

[0014] In accordance with prior-art technology the casement 1 may be pivoted relatively to the frame 2 in the manner illustrated in Fig. 2 by continuous as well as dash-and-dot lines. In accordance with the invention the pivotment of the casement 1 may continue in the direction of arrow 30 to position the casement 1 in the frame 2 while the guide bushing 8 is being guided in the transverse groove 24. In this position of reversion over 180° it is now possible to both lock the casement 1 in the conventional manner by means of a locking fitting not illustrated at its one end and also to secure it by means of the turnable means 26, 27, 28 at its opposite end. From this position it is possible, in accordance with the invention, to pivot the casement 1, following turning of said turnable member to release position, outwardly in the same direction as previously or to pivot the casement backwards in the opposite direction.

[0015] Owing to the design of the casement 1 and the frame 2 in accordance with the invention it thus is without significance which one of the covering strips 13 or 17 that forms the external strip and which one the interior strip. When the window panes 11 are treated in the manner described in the introduction hereto for the purpose of screening off heat radiation, the window in accordance with the invention could be utilized optimally, irrespective of season, considering whether or not heat radiation should be screened off from without or within. Owing to the simplicity of manipulation of the window it is easy to make use of the possibility to screen off strong sun light, even if there is a need therefor during a few hours only.

[0016] The invention is not limited to the embodiment illustrated and described in the foregoing but could be varied in several ways within the scope of the appended claims. Obviously, it is possible to arrange for the window to be pivotable either horizontally or vertically.

Claims

1. An improved turnable window frame (2) and a casement (1), the latter being pivotally mounted on pivots (19) at mid-point of the casement (1) with the aid of a link-arm mechanism (18, 22) extending between the respective pivot (19) and on the window frame (2),
characterized by
that the casement (1) is pivotable, from a closed po-

sition within the frame (2), over half a turn to a closed, fully reversed position, and from said latter position, is pivotable further in the same direction, and that each of the two ends of the casement (1) is detachable from the window frame (2) independently of which side of the window facing outwards.

2. An improved window as claimed in claim 1,
characterized by
a longitudinal groove (23) formed in two oppositely positioned side faces of the frame (2), said groove continuing at each one of its ends in a transverse groove (24 and 25, respectively) opening onto the external face of the frame (2), and in that the casement (1) is provided with a guide bushing (8) travelling in its associated one of said longitudinal and transverse grooves (23, 24, 25).
3. An improved window as claimed in claim 2,
characterized by
locking means (26, 27, 28) arranged at the upper part of the frame (2) for the purpose of securing the guide bushing (8) after entrance of said bushing into the transverse groove (24) upon pivoting of said casement (1) into the frame (2).
4. An improved window as claimed in claim 1,
characterized in
that each side jamb of the casement (1) intermediate two corner portions consists of two structural profile sections (3, 4) extending in mutual parallel relationship and being interconnected via bridge elements (6, 7) having poor heat-conductivity, said profile sections (3, 4) securing the guide bushing (8) between them, and of a third profile section (5) extending in parallel with the structural sections (3, 4), said third profile section (5) serving as a glazing strip and defining between one (9) of its longitudinal edge webs and a longitudinal edge web (10) of one (3) of the structural profile sections a space for reception therein of an edge portion of a single glazing or a multiple glazing window pane unit (11), and in that screws (12) are provided to secure the glazing strip profile section (5) to the structural profile sections (3, 4).
5. An improved window as claimed in any one of the preceding claims,
characterized by
a covering strip (13) arranged on the screw (12) insertion side of the casement so as to enclose the longitudinal edge web (9) of section (5) serving as a glazing strip in the area adjacent the glazing unit (11), said covering strip (13) formed in the area of the opposite longitudinal edge of the profile section (5) with a transverse edge portion (14) which gripably engages a correspondingly configured transverse edge portion (15) in the glazing strip profile

section (5) and which is arranged to be attached to said latter transverse edge portion (15) by means of screws (16) that are hidden between the frame (2) and the casement (1) in the closed position of the latter.

Patentansprüche

1. Verbesserter Drehfensterrahmen (2) und Fensterflügelrahmen (1), wobei der letztere drehbar auf Drehlagern (19) in Mittelpunkten des Fensterflügelrahmens (1) mit Hilfe eines Glied-Arm-Mechanismus (18, 22), der sich zwischen dem jeweiligen Drehlager (19) und den Fensterrahmen (2) erstreckt, montiert ist,
dadurch gekennzeichnet, dass der Fensterflügelrahmen (1) drehbar ist von einer geschlossenen Position innerhalb des Rahmens (2) um eine halbe Drehung in eine geschlossene, vollständig umgekehrte Position, und von der letzteren Position weiter drehbar ist in derselben Richtung, und dass jedes der zwei Enden des Fensterflügelrahmens (1) von dem Fensterrahmen (2) lösbar ist, unabhängig davon, welche Seite des Fensters nach außen gerichtet ist.
2. Verbessertes Fenster nach Anspruch 1, **gekennzeichnet durch** eine Längsnut (23), die in zwei gegenüberliegend positionierten Seitenflächen des Rahmens (2) gebildet ist, wobei die Nut sich an jedem ihrer Enden in einer Transversalnut (24 bzw. 25) fortsetzt, die sich auf die Außenfläche des Rahmens (2) öffnen, und **dadurch**, dass der Fensterflügelrahmen (1) mit einer Führungshülse (8) ausgestattet ist, die in ihrer zugeordneten der Längs- und Transversalnuten (23, 24, 25) läuft.
3. Verbessertes Fenster nach Anspruch 2, **gekennzeichnet durch** Verriegelungseinrichtung (26, 27, 28) die an dem oberen Teil des Rahmens (2) zum Zweck des Sicherens der Führungshülse (8) nach dem Eintreten der Hülse in die Transversalnut (24) beim Drehen des Fensterflügelrahmens (1) in den Rahmen (2) angeordnet ist.
4. Verbessertes Fenster nach Anspruch 1, **dadurch gekennzeichnet, dass** jeder Seitenpfosten des Fensterflügelrahmens (1) zwischen zwei Eckabschnitten aus zwei Tragprofilabschnitten (3, 4) besteht, die sich in zueinander paralleler Beziehung erstrecken und über Brückenelemente (6, 7), die eine geringe Wärmeleitfähigkeit besitzen, verbunden sind, wobei die Profilabschnitte (3, 4) die Führungshülse (8) zwischen ihnen sichern, und aus einem dritten Profilabschnitt (5) besteht, der sich parallel zu den Tragabschnitten (3, 4) erstreckt, wobei der dritte Profilabschnitt als Verglasungsstreifen

dient und zwischen einer (9) seiner Längskantenflächen und einer Längskantenfläche (10) eines (3) der Tragprofilabschnitte einen Raum zur Aufnahme darin eines Randabschnitts einer einzelnen oder mehreren Verglasungsfensterscheibeneinheiten (11) definiert, und dass Schrauben (12) vorgesehen sind, um den Verglasungsstreifenprofilabschnitt (5) an den Tragprofilabschnitten (3, 4) zu befestigen.

5. Verbessertes Fenster nach einem der vorhergehenden Ansprüche, **gekennzeichnet durch** einen Abdeckungsstreifen (13), der auf der Einfügeseite der Schrauben (12) des Fensterflügelrahmens derart angeordnet ist, um die Längskantenfläche (9) des Abschnitts (5), der als Verglasungsstreifen in dem Bereich benachbart zu der Verglasungseinheit (11) dient, abzudecken, wobei der Abdeckungsstreifen (13) in dem Bereich der gegenüberliegende Längskante des Profilabschnitts (5) mit einem Transversalkantenabschnitt (14) gebildet ist, der greifend einen entsprechend konfigurierten Transversalkantenabschnitt (15) in dem Verglasungsstreifenprofilabschnitt (5) betätigt und der derart angeordnet ist, um an dem letzteren Transversalkantenabschnitt (15) mittels von Schrauben (16) befestigt zu sein, die zwischen dem Rahmen (2) und dem Fensterflügelrahmen (1) in der geschlossenen Position des letzteren verborgen sind.

Revendications

1. Bâti de fenêtre pivotante perfectionnée (2) et châssis (1), ce dernier étant monté de façon pivotante sur des pivots (19) en un point milieu du châssis (1) à l'aide d'un mécanisme à biellette-bras (18, 22) s'étendant entre le pivot respectif (19) et le bâti de fenêtre (2), **caractérisé en ce que** le châssis (1) est pivotant, depuis une position fermée à l'intérieur du bâti (2), sur un demi-tour jusqu'à une position fermée totalement inversée, et depuis ladite dernière position, est encore pivotante dans la même direction, et **en ce que** chacune des deux extrémités du châssis (1) peut être détachée du bâti de fenêtre (2) indépendamment du côté de la fenêtre qui est orienté vers l'extérieur.
2. Fenêtre perfectionnée selon la revendication 1, **caractérisée par** une rainure longitudinale (23) formée dans deux faces latérales positionnées de manière opposée du bâti (2), ladite rainure se prolongeant à chacune de ses extrémités dans une rainure transversale (24 et 25 respectivement) qui s'ouvre sur la face externe du bâti (2), et en ce que le châssis (1) est pourvu d'un manchon de guidage (8) qui se déplace dans sa rainure associée desdites rainures longitudinale et transversales (23, 24,

25).

3. Fenêtre perfectionnée selon la revendication 2, **caractérisée par** des moyens de blocage (26, 27, 28) disposés au niveau de la partie supérieure du bâti (2) dans le but de fixer le manchon de guidage (8) après l'entrée dudit manchon dans la rainure transversale (24) lors du pivotement dudit châssis (1) dans le bâti (2).
4. Fenêtre perfectionnée selon la revendication 3, **caractérisée en ce que** chaque jambage du châssis (1) entre deux parties de coin se compose de deux sections profilées structurelles (3, 4) s'étendant en relation mutuellement parallèle et qui sont interconnectées par des éléments de pontage (6, 7) ayant une faible conductivité thermique, lesdites sections profilées (3, 4) fixant le manchon de guidage (8) entre elles, et d'une troisième section profilée (5) qui s'étend parallèlement aux sections structurelles (3, 4), ladite troisième section profilée (5) servant de bande de vitrage et. définissant entre l'une (9) de ses ailes de bord longitudinal et une aile de bord longitudinal d'une (3) des sections profilées structurelles un espace pour la réception d'une partie de bord d'un vitrage simple ou d'une unité de vitre à vitrage multiple (11), et **en ce que** des vis (12) sont prévues pour fixer la section profilée de bande de vitrage (5) sur les sections profilées structurelles (3, 4).
5. Fenêtre perfectionnée selon l'une quelconque des revendications précédentes, **caractérisée par** une bande de recouvrement (13) prévue sur le côté d'insertion de vis (12) du châssis de façon à enfermer l'aile de bord longitudinal (9) de la section (5) servant de bande de vitrage dans la zone adjacente à l'unité de vitrage (11), ladite bande de recouvrement (13) étant formée dans la zone du bord longitudinal opposé de la section profilée (5) avec une partie de bord transversal (14) qui engage avec accrochage une partie de bord transversal configurée de manière correspondante (15) dans la section profilée de bande de vitrage (5) et qui est prévue pour être fixée sur ladite dernière partie de bord transversal (15) au moyen de vis (16) qui sont cachées entre le bâti (2) et le châssis (1) dans la position fermée de ce dernier.

5

10

15

20

25

30

35

40

45

50

55

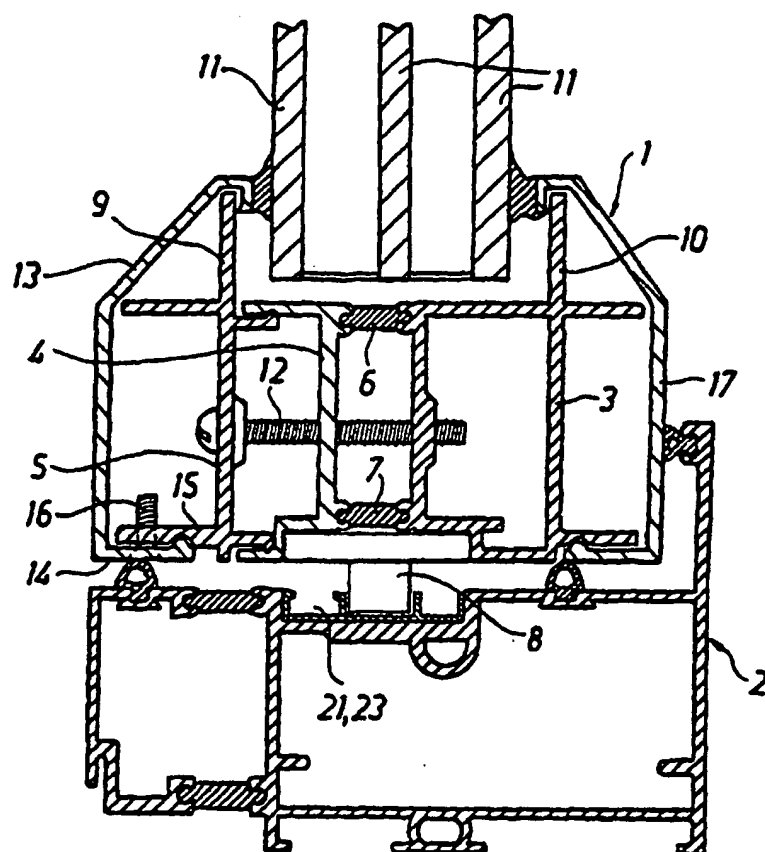


Fig. 1

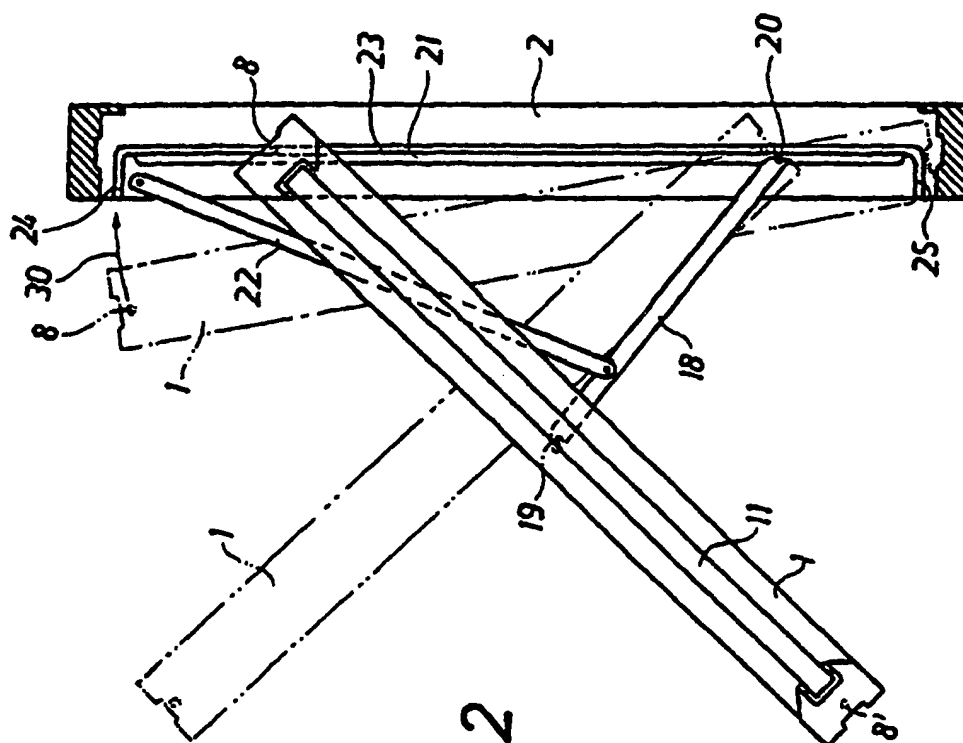


Fig. 2

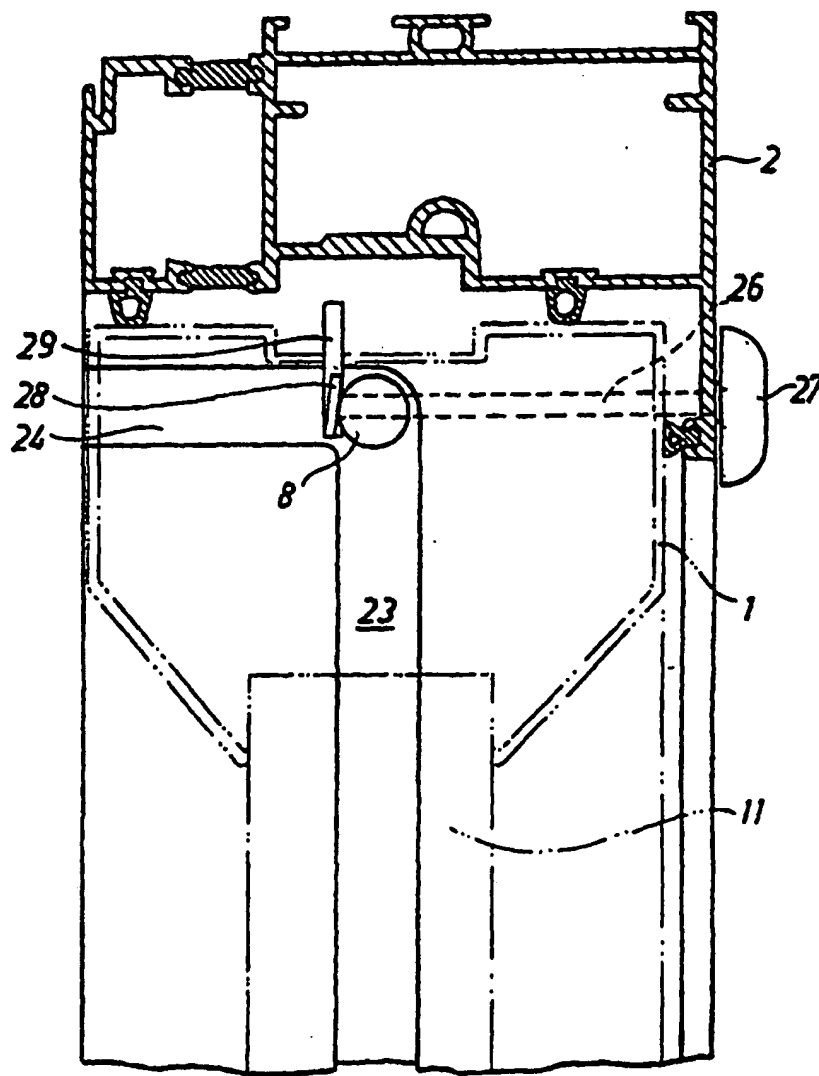


Fig. 3

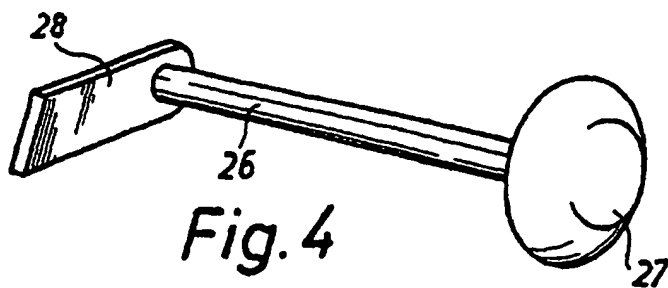


Fig. 4